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PHOTOGRAPHS AND DESCRIPTIONS OF CUP-FUNGI—I. PEZIZA

FRED J. SEAVER

(WITH PLATES 155 AND 156, CONTAINING 4 FIGURES)

Although the type of the genus *Peziza* is in doubt, the name stands in current usage as it doubtless should continue to do, for the large fleshy cup-fungi. Notwithstanding the number of segregates which have been made on one character or another, the genus is still represented by a fairly large number of species.

Many of the species of the genus cannot be satisfactorily studied from dried specimens alone, since the more conspicuous characters, such as color, form, etc., are entirely lost in this condition. In a number of species, the spores furnish valuable diagnostic characters, but in other cases we must rely entirely on gross character. For this reason, the species of the genus should be accompanied by complete field notes, or as is still better, by colored sketches or photographs or both.

The reproduction of the plants of this group by photographs while inferior in many ways to reproduction by color, is less expensive and shows many fine details which are lost even in the best colored illustrations. For these reasons, it is the intention to bring out from time to time illustrations of the common species of *Peziza* and other cup-fungi in such a way as to aid in determining the identity of these plants as they are collected in the field. The following illustrations represent four of the common species of *Peziza*, the photographs having been made from local specimens collected by the writer in the vicinity of New York City.

PEZIZA BADIA Pers. Obs. Myc. 2: 78. 1799

?*Peziza cochleata* L. Sp. Pl. 1181. 1753.

?*Helvella cochleata* Bolton, Fungi Halifax 3: 99 (in part). 1789.

Plicaria badia Fuckel, Symb. Myc. 327. 1869.

Aleuria badia Gill. Champ. Fr. Discom. 43. 1879.

Apothecia scattered, gregarious or more commonly cespitose, sessile, at first globose, expanding and becoming deep cup-shaped, regular in form, or infolded and cochleate or auricular, occasionally one-sided and rarely *Otidea*-like, externally varying from tan-colored when young to dark-brown with age, whitish near the base, pustulate, the pustules often reddish or purplish, becoming dark with age, reaching a diameter of 10 cm.; hymenium dark-brown; asci tapering below and often forked at the base, cylindric above; spores 1-seriate, usually oblique and often irregularly crowded, ellipsoid, with the ends quite strongly narrowed, becoming verrucose, hyaline or very faintly colored, $17-23 \times 8-10 \mu$; paraphyses rather strongly enlarged above, yellowish.

On the ground in deciduous woods.

TYPE LOCALITY: Europe.

DISTRIBUTION: New York to Oregon, California and Alabama; also in Europe.

ILLUSTRATIONS: Boud. Ic. Myc. *pl.* 283; Bull. Lab. Nat. Hist. State Univ. Iowa 6: *pl.* 14, *f.* 2, *pl.* 15, *f.* 1; Cooke, Mycographia *pl.* 57, *f.* 226; Gill. Champ. Fr. Discom. *pl.* 42.

EXSICCATI: Ellis & Ev. N. Am. Fungi 981.

Peziza cochleata of Linnaeus is a species of doubtful identity. Persoon in 1801 described *Peziza badia* and cited as a synonym *Helvella cochleata* Bolton. Bolton apparently included in his description two species, one of which is commonly taken to be identical with *Peziza badia* as at present known. Bolton's *Helvella cochleata* represents his conception of *Peziza cochleata*. Some modern authors are inclined to regard *Peziza cochleata* L. as an *Otidea*. In the absence of any definite information, the writer is inclined to adhere to the early conceptions of Bolton and Persoon and regard *Peziza cochleata* L. as at least a doubtful synonym of the present species.

PEZIZA VESICULOSA Bull. Herb. Fr. *pl.* 457. 1789

?*Helvella cochleata* Bolton, Fungi Halifax 3: 99 (in part). 1789.

Pustularia vesiculosa Fuckel, Symb. Myc. 329. 1869.

Aleuria vesiculosa Gill. Champ. Fr. Discom. 45. 1879.

Apothecia gregarious or more often densely cespitose, at first closed and globose, gradually expanding and becoming deep cup-shaped, regular in form or irregularly contorted, sessile or with

very stout stem-like base, externally whitish or yellowish, pustulate from the presence of minute warts, reaching a diameter of 7–8 cm.; hymenium pale-brown, darker than the exterior of the apothecium; asci cylindric or subcylindric; spores obliquely 1-seriate, ellipsoid, smooth, hyaline, $20\text{--}23 \times 10\text{--}11 \mu$; paraphyses enlarged above, granular within, subhyaline.

On manure piles and rich soil.

TYPE LOCALITY: France.

DISTRIBUTION: New York to Washington, California and Alabama; probably throughout North America; also in Europe.

ILLUSTRATIONS: Bull. Herb. Fr. *pl.* 457; Boud. Ic. Myc. *pl.* 257; Cooke, Mycographia *pl.* 63, *f.* 242; Gill. Champ. Fr. Discom. *pl.* 44; Rabenh. Krypt. Fl. 1^3 : 992, *f.* 1–4; Bull. Lab. Nat. Hist. State Univ. Iowa 6: *pl.* 16, *f.* 1; Sowerby, Engl. Fungi *pl.* 4; Massee, Brit. Fungus Fl. 4: 290, *f.* 22.

EXSICCATI: Ellis, N. Am. Fungi 1270.

PEZIZA PUSTULATA (Hedw.) Pers. Syn. Fung. 646. 1801

Octospora pustulata Hedw. Musc. Frond. 2: 19. 1787.

Plicaria pustulata Fuckel, Symb. Myc. 327. 1869.

Peziza assimilata Karst. Not. Fauna Fl. Fenn. 10: 113. 1869.

Aleuria pustulata Gill. Champ. Fr. Discom. 45. 1879.

Peziza umbrina Boud.; Cooke, Mycographia 226 (in part). 1879.

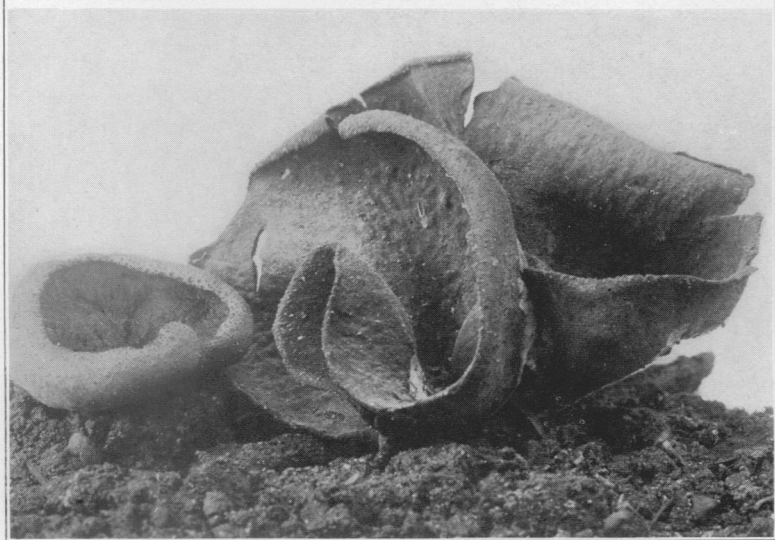
Apothecia gregarious, scattered or cespitose, at first closed and globose, gradually expanding, reaching a diameter of 3–5 cm., regular or much contorted, externally whitish and densely pustulate, the pustules giving rise to bran-like particles as the plant matures, margin usually crenate; hymenium pale- to dark-brown; asci cylindric above, reaching a length of 275μ and a diameter of $12\text{--}14 \mu$; spores 1-seriate, ellipsoid, becoming minutely roughened, hyaline to faintly yellowish, $15\text{--}17 \times 10 \mu$; paraphyses strongly enlarged and reaching a diameter of 7–8 μ .

On charcoal and burned areas.

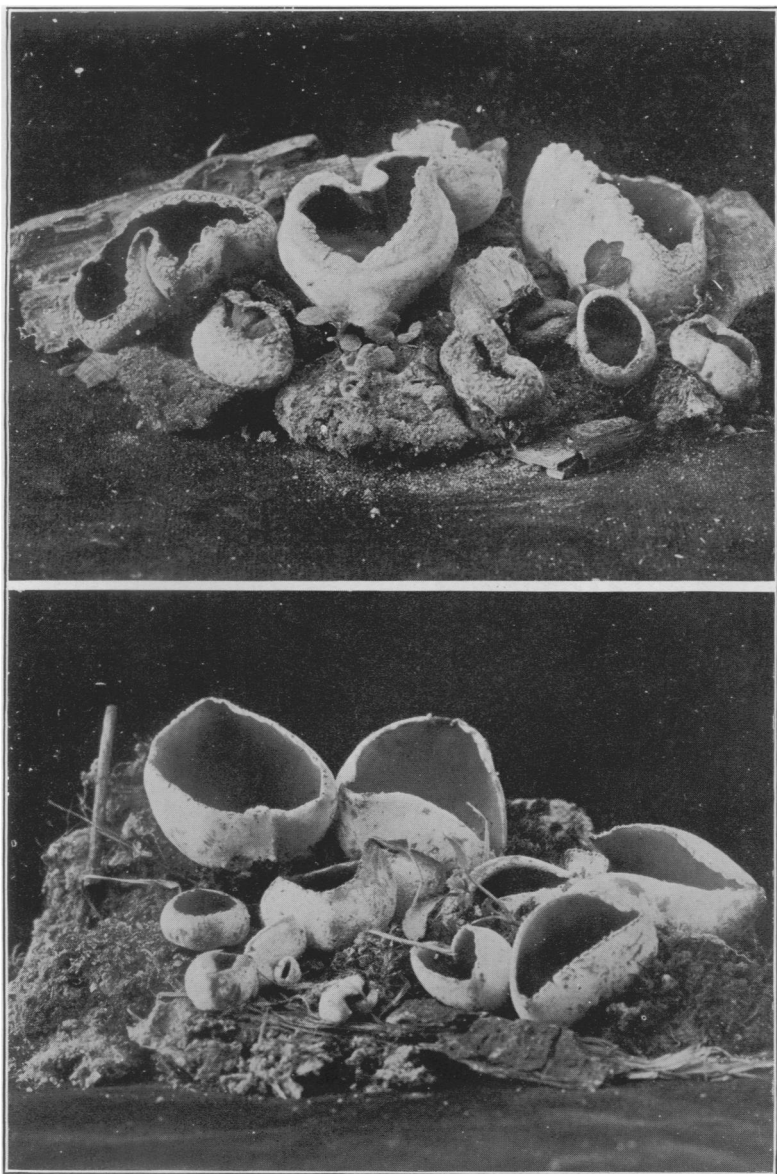
TYPE LOCALITY: Europe.

DISTRIBUTION: New York to Wisconsin; also in Europe.

ILLUSTRATIONS: Boud. Ic. Myc. *pl.* 279; Cooke, Mycographia *pl.* 106, *f.* 378; Grevillea 2: *pl.* 24, *f.* 2; Hedw. Musc. Frond. 2: *pl.* 6, *f.* 1–4; Gill. Champ. Fr. Discom. *pl.* 47, *f.* 2.



PEZIZA VESICULOSA BULL.
PEZIZA BADIA PERS.



PEZIZA PUSTULATA (HEDW.) PERS.
PEZIZA SYLVESTRIS (BOUD.) SEEVER

***Peziza sylvestris* (Boud.)**

Aleuria sylvestris Boud. Hist. Class. Discom. Eu. 45. 1907.

Apothecia gregarious, sessile, deep cup-shaped to subdiscoid, externally whitish, nearly smooth or pustulate, the margin even or slightly wavy and crenate, reaching a diameter of 3–8 cm.; hymenium umber-brown; asci cylindric above, gradually tapering below, reaching a length of 300–325 μ and a diameter of 13–15 μ ; spores 1-seriate, with the ends slightly overlapping, hyaline, smooth, 17–20 \times 9–10 μ ; paraphyses strongly enlarged above, reaching a diameter of 7–8 μ at their apices.

On rubbish piles and soil in woods.

TYPE LOCALITY: Europe.

DISTRIBUTION: New York; also in Europe.

ILLUSTRATIONS: Boud. Ic. Myc. *pl.* 261.

The species listed under this name is common about New York City. While agreeing with Boudier's description and illustrations, it is not unlikely that the species has been previously described. From our own observations, the species seems quite variable both in size and appearance, the apothecia being sometimes nearly plane and occasionally strongly warted and then resembling *Peziza bufonia* Pers. The species differs from *Peziza pustulata* in the habitat and in the spores, those of the former being strongly roughened and those of the present species permanently smooth. The size and color of the two species is almost identical.

New York BOTANICAL GARDEN.

EXPLANATION OF PLATES

PLATE CLV

Upper figure, *Peziza vesiculosa* Bull.

Lower figure, *Peziza badia* Pers.

PLATE CLVI

Upper figure, *Peziza pustulata* (Hedw.) Pers.

Lower figure, *Peziza sylvestris* (Boud.) Seaver.